DOCUMENT RESUME

ED 407 989 JC 970 331

AUTHOR Miller, Margaret R.; Morgan, Samuel S.
TITLE What Is College-Level Course Work?
PUB DATE 2 May 97
NOTE 21p.; Paper presented at the Regional Conference on Innovations in Teaching: New Ideas/Successful Practices (North Branch, NJ, May 2, 1997).
PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Academic Standards; Articulation (Education); *College Faculty; Community Colleges; *Course Content; *Course Descriptions; Course Objectives; Higher Education; *Teacher Attitudes; *Teacher Expectations of Students; Two Year Colleges; Universities

ABSTRACT

Although cooperation between community college and university faculty regarding the characteristics of college-level coursework has been difficult to attain, the development of such standards could reduce frustration and costs for transfer students and help reduce duplication of efforts. In an effort to find areas of agreement on such characteristics, interviews were conducted with four mathematics and four English faculty at Maryland's largest university and four mathematics and five English faculty at the state's largest community college. Participants were asked to describe the defining characteristics of college-level coursework in as much detail as possible. An analysis of responses indicated that there were more similarities than differences among respondents and resulted in the identification of the following eight categories of characteristics, ranked in order by the number of interviewees citing them: (1) problem-solving, using higher order thinking skills; (2) mastery of subject matter, or a deep understanding rather than rote memorization; (3) connections within and across disciplines; (4) student maturity, including taking responsibility for learning; (5) the measure that they build on knowledge bases from high school; (6) course content, including approaches to teaching and complexity; (7) pedagogical issues related to writing, reading, evaluation, and textbook use; and (8) the rigor of material, or the measure that it challenges students. Contains 11 references. (BCY)

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WHAT IS COLLEGE-LEVEL COURSE WORK?

Margaret R. Miller and Samuel S. Morgan

Do university and community college faculty view the characteristics of college-level course work in the same way? Is there even a need for a set of identifiable characteristics which can be endorsed by both two- and four-year institutions? Consider how disheartening it is for a student to find that a course successfully completed at a community college is not accepted for credit upon transfer to a four-year institution. Consider the financial and time considerations which arise through the cost of repeating courses and through the possible delay in graduation. These and other factors have caught the attention of many State legislatures which are considering the duplication of services at state supported institutions. In addition to the above considerations the critics of higher education often question the academic standards at all colleges and universities.

Cooperation within the academic community is difficult when the community college views the four-year institution as elitist and the latter views the former as lacking standards. To some extent both are correct. Until now, there seemed to be no way to resolve such conflicts. Could the faculties of both institutions agree on characteristics which would identify courses as college-level within specific disciplines? A recent study conducted in Maryland developed characteristics of college-level course work on which there was such agreement.

BRIEF REVIEW OF THE LITERATURE

Prior to this research, no systematic study of the characteristics of college-level course

work had been done. The literature reflects the various viewpoints of knowledgeable writers regarding college-level course work. What is meant by college level is ill-defined and varies considerably from college to college (Carnegie, 1987). According to Frances Ferguson, a former Vice President of Academic Affairs at Bucknell University (Adelman, 1968), college-level learning has much to do with the liberal arts, with the development of the capacity to analyze, problem solve, communicate, and synthesize. Above all, it is important for college students to develop the ability to synthesize. College students are at a state in their personal maturation when analysis for individual understanding is important; where they use their experience to become mature, independent adults. "Synthesis is the hardest ability to develop and it relies on a prerequisite breadth of knowledge acquired through a truly liberal education ..." (p. 29).

Alison Bernstein, who was at the Ford Foundation, characterizes college-level learning as that which takes place in courses not offered in high school, e.g. logic, anthropology, Latin American history, art history in general (not the social studies concepts taught without chronology), real economics, political science, and certain forms of math, such as calculus. Each offers a conception of reality, and where possible are taught through original texts, not mediated texts. To know that college-level learning is taking place, true/false and multiple-choice tests should be abolished. Students should be graded on the quality of their thinking. College-level learning is synonymous with continuous and disciplined writing (Adelman, 1986). Writing is essential to college-level learning since it disciplines thinking in a way that speaking does not (p. 30). College writing consists of short essays, term papers, lab reports, and essay examinations. Essay writing provides the opportunity to organize bits of knowledge around a central theme. Term papers require the student to gather large amounts of knowledge into one document. Lab

reports require the student to think about the experiment and draw conclusions (p. 42).

College-level learning is also about identifying and manipulating theories, concepts, and abstractions requiring in-depth involvement with the reality of a culture different from one's own, including the historical, geographical, language, gender, class, and race perspective (Adelman, 1968). An academic culture values reasoned inquiry and principled dispute (McGrath & Spear, 1991). Abstract reasoning is necessary and the ability to handle ideas and language well. Reading and writing is a matter of mastering semantic, syntactic and orthographic correctness (McGrath & Spear, 1991). These skills are prerequisite to college-level learning. Critical reading and writing skills distinguish the educated and educable from the undereducated and functionally illiterate (Richardson et al., 1983). College level does not have to mean liberal arts, but that complex course content and level of intellectual challenge need to be present (Eaton, 1994). Rigor, expectation, and pedagogy are critical aspects of academic culture (McGrath & Spear, 1991). "The goal of a liberal education is to free you from biases, superstitions, prejudices, and lack of knowledge that characterized you before you came to college" (p. 65). College-level courses generally involve specialization of a theoretical or analytical nature beyond the introductory level. Practices which must be present at the collegiate level are writing, perfecting research, problem solving, and pursuing subject matter outside the educational or career goal (Eaton, 1988).

There is an apparent incoherence in American higher education and there has been an inability or unwillingness to take common action to rectify this incoherence (Adelman, 1986); Cohen & Brawer, 1987; and Rudolph, 1987). Colleges and universities appear to have made no attempt to integrate pedagogy into any single type of undergraduate curriculum (Carnegie, 1987), resulting in no absolute standards regarding college curriculum (Cohen & Brawer, 1987). We

have unfortunately lost any definition, if there ever was one, of what clearly distinguishes between pre-college and college-level academic work (Adelman, 1986). Degrees offered at American colleges simply record the successful completion of requirements, generally common to most institutions, but which vary greatly in specific detail as to their intellectual content, subject matter, rigor, and difficulty (Carnegie, 1987). Course content and level are seldom considered when students transfer credits from one four-year college to another, but content and level are a consideration for community college transfer students, whose course work is often not considered by some as college level.

American colleges and universities are extremely divergent--with many goals and missions. This diversity while offering obvious advantages, also has shortcomings. Diversity conceals the question of whether or not there should be some common characteristics which define the education colleges offer their students (Carnegie, 1987).

Recent research that has replicated this study was done by Tresai Samani (1997) and Norwood MacMillian (1997). Samani analyzed data gained through interviews with history and biology professors at community colleges and four-year institutions in Southwestern Virginia. MacMillian gathered his data from professors of accounting and management at both types of colleges in Central North Carolina. The results of these two studies are very similar to the results of the Maryland study. The potential of all of this research is that a system may be developed whereby courses are evaluated using characteristics whose presence would identify them as college-level and mandatorily transferable within a state system and conceivably nationwide. This is happening now in several states. For example, the Maryland Higher Education Commission has designated an intersegmental study group to develop the definitions, agreements,

and policies necessary to implement transfer policy statewide. A series of discipline meetings involving professors from two- and four-year colleges are being conducted at which guidelines are being developed for the transferability of general education courses. These guidelines reflect the characteristics of college-level course work elicited in this study, as well as the essence of specific disciplines (personal communication, Maryland Higher Education Commission, Spring 1997).

THE DEFINING CHARACTERISTICS OF COLLEGE-LEVEL COURSE WORK

This qualitative study was conducted at Maryland's largest community college and its largest university. Four mathematics and four English faculty at the university and four mathematics and five* English faculty at the community college were chosen for an in-depth exploration of their opinions. These professors were identified by their colleagues as being knowledgeable about and interested in curriculum issues. The choice of two specific institutions and two disciplines reduced the probability of the confounding variables of college culture and of discipline culture. A set of broad, open-ended interview questions was designed to gather information from the professors. Each interviewee was asked to describe the defining characteristics of college-level course work in as much detail as possible.

The analysis of the interview included generating categories, themes, and patterns; organizing the date into domains; and comparing and contrasting the community college analysis

*Early into the interview, a community college English instructor asked to drop out of the research because she couldn't describe college-level course work. After further consideration she asked to be included because she had worked out the differences between high school and college course work. Her comments were compelling and therefore included in the analysis.

with the university analysis and the disciplines against each other; finally the data was arranged into meaningful categories of information.

There were more similarities than differences in the comments among and between the groups; the analysis resulted in the identification of eight categories of characteristics arranged here in ranking order based on how many interviewees included the characteristic in their discussion:

1. Problem solving using the higher order thinking skills;
2. Mastery of the subject matter;
3. Connections within and across disciplines;
4. Maturity of the student;
5. Essential knowledge base from high school;
6. Course content;
7. Pedagogical issues of writing, reading, evaluation, and textbook; and
8. Rigor.

Problem solving using the higher order thinking skills was a characteristic discussed by all of the faculty involved in this study. The higher order thinking skills necessary in college-level work are those listed in Bloom's taxonomy: analysis, synthesis, interpretation, evaluation, inference drawing and conceptualizing; all of which may be used in critical thinking (Bloom, 1969). At least one of these attributes was mentioned by every interviewee. The general point was made that complex problem solving occurs in college-level course work; these problems often involve multiple variables drawn from different sources, and students must develop a model for solution, and evaluate their solution.

Mastery of subject matter, discussed by an overwhelming majority of those interviewed, means that the students seek a deep understanding of the subject; and do not resort to memorizing bits and pieces of information, out of context.

The third characteristic, connections within and across disciplines, relates to the fact that students must draw on previous knowledge across a semester in preparation for comprehensive examinations. Connections also means across disciplines; for instance, mathematics is used in many fields such as the study of economics or chemistry. The faculty were hopeful that connections would be made between college work and future employment.

There appears to be a relationship between mastery of subject matter and connections within and across disciplines. Students must master course work so that it becomes part of long term memory, and therefore, is retrievable in order to make connections within and across disciplines.

Student maturity is essential for success in college courses. This characteristic includes the willingness of students to take responsibility for their learning. The interviewees were in agreement that maturity is necessary in making judgements and in drawing inferences. In the words of a community college mathematics instructor, "You would not expect someone who is 15 to be able to draw the same conclusions as someone who is 25."

College course work builds on an essential knowledge base. Both of the disciplines used in this study, mathematics and English, are part of the curriculum from elementary school upward; so it is not surprising that faculty comments were similar across these two disciplines and across institutions. As one community college mathematics instructor explained "College level is one that builds on all those standard high school courses."

The faculty interviewed discussed course content from two perspectives. The community college perspective is illustrated in the following comment from an English instructor: "It is not so much level as approach ... it is often the way a course is taught that is college, not necessarily the content." A mathematics colleague further explained: "It is both the content as well as how you approach the content, and what you do with it." The university faculty had a different perspective. According to a university English instructor, college students "will not have had most of what I teach [when they were] in high school, basically because it is too hard." A university mathematics instructor illustrated the point saying: "A college-level course is more sophisticated [than a high school course] ... with more complex and subtle concepts." So a difference of opinion appears to exist between institutions on this point with the community college expressing that college level is reflected in the approach to teaching as well as the content, and the university faculty citing complexity of the course content.

The pedagogical issues in college courses included writing, reading, evaluation of the student, and the textbook. While these topics were not discussed by everyone, there was great similarity across the disciplines and across the institutions in the comments made.

All of the English faculty at the community college discussed the importance of writing in college course work, but only one mathematics instructor mentioned it. This is attributable to the fact that writing is not an integral part of the mathematics courses at the community college until the calculus level. The community college mathematics instructor who teaches calculus commented, "The biggest complaint about the journal writing was not that they had to write but that I would correct their spelling." Three of the four university mathematics faculty cited writing as essential in college course work. According to one university mathematics instructor,

"Students are often surprised that papers are required in mathematics courses." She went on to say, "It is entirely different than anything they have had before. Some of the English majors are delighted because they get to write." The university mathematics instructors use journal writing, papers, and take-home examinations which require clearly written approaches to problem solutions.

Reading was discussed by each of the community college English faculty, but by none of the mathematics instructors, and perhaps this discrepancy is attributable to the interview responses being discipline specific. This applies to the university interviews as well. Three of the university English faculty stressed the necessity of good reading skills while only one of the mathematics instructors mentioned reading. All of those who talked about reading in college agreed that it greatly exceeds what students have done in high school both in quantity and in complexity.

Student evaluation was a concept included in four of the five community college English interviews. The instructors' comments were generally directed at evaluating writing. All of those who talked about evaluation described the model used as being mid-term examinations, a comprehensive final, and at least one paper. In literature classes, instructors include identification-of-character type questions on their examinations, so that they were not exclusively essay format. The university model for mid-term and final examinations was comprehensive essay evaluation. Two mathematics instructors from the community college and two from the university described evaluation in college-level mathematics as very different from that which occurs in high school. In college the tests are not like the homework; students must draw from what they have learned and apply this in "slightly new settings" ... "so you [the student] have to

think."

Discussions about the textbook took place in over half of the interviews. The comments were similar across institutions. The English faculty do not rely heavily on textbooks, using anthologies and stand-alone books instead. The mathematics faculty rely more heavily on textbooks, believing that this reliance, while it may drive the course, does not completely define it. The university mathematics department used the same textbook for each course in all freshman and sophomore mathematics courses because of the large number of teaching assistants. The common textbook provides a teaching guideline for this relatively inexperienced group. The largest campus of the community college also uses a common textbook across all of its mathematics sections partly because of the large number of part-time instructors. While this group is experienced, a common text and a common syllabus help to ensure that material required for the next level is covered.

Approximately half of those interviewed in this study mentioned rigor as a requirement in college-level course work. But as rigor in college courses was described, the above mentioned attributes were included in the description. A community college English instructor said, "It (college course work) must make one very, very uncomfortable and I think the over-used and trite word is challenging." According to her colleague from the mathematics department, the rigor of college work is in "the type of testing that takes place; the way students are expected to perform in examinations and the level of response that is required; how deeply they understand the topic." A university English instructor commented that the rigor in a college course is there because college instructors often "do not supply an answer in a box," leaving the student to "find the answer," and "be comfortable with the fact that there may be more than one correct answer."

In general, this research determined that the community college and university English and mathematics faculty interviewed believed that college-level course work is designed for mature learners who take responsibility for their learning. Course work involves problem solving utilizing higher order thinking skills, drawing on knowledge and techniques previously learned in other courses and disciplines. Courses are reading and writing intensive based on sophisticated inquiry, where the answer is seldom apparent. Mastery of course material is essential not only because it is evaluated through comprehensive essay examinations but because it is connected to further course and applications beyond the classroom.

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Dr. Miller is the Transfer Coordinator for Montgomery College, Germantown, Maryland and coordinates the state-wide transfer database for this three campus community college. Phone: 301-353-7768. E-mail: mrmiller@umd5.umd.edu FAX 301-353-7775.

Dr. Morgan is an Associate Professor of Education at Virginia Polytechnic Institute and State University in Blacksburg, Virginia. Phone: 540-231-9717